# USAF Scientific Advisory Board Study
# Data Analytics to Support Operational Decision Making

## *Study Abstract*

The USAF Scientific Advisory Board (SAB) study on Data Analytics to Support Operational Decision Making assessed the extent to which modern data analytics approaches can augment and improve USAF decision making processes. Currently, the USAF faces challenges in efficiently exploiting large amounts of Intelligence, Surveillance, and Reconnaissance (ISR) data to produce decision quality information in a timely manner. The SAB study focused on leveraging recent advances in data analytics to enhance the USAF Planning, Collection, Processing and exploitation, Analysis and production, and Dissemination (PCPAD) framework in order to address this problem.

The SAB study conducted a comprehensive investigation of USAF intelligence organizations and processing centers, the intelligence community (IC), leading-edge commercial companies, and other non-DoD government organizations with the goal of understanding the successful application of automated data analytics techniques. In addition, the study conducted a number of site visits and interviews with intelligence and operational users to understand the utilization of data analytics in the USAF, broader IC, and the DoD. The study also explored the necessary architectural transformation to support the desired data analytic activities.

The study found that the Air Force now fights in an information-centric battlespace, its systems are not designed for the agile exploitation of data, and current systems will not scale to accommodate rapidly growing data rates and diversity. Many organizations have been able to address a very similar rapid growth of available data to create transformational opportunities using state-of-the-art data analytic techniques that are highly applicable to the Air Force. Significant improvements in operational decision-making can be realized through data analytic techniques that can provide far more effective and relevant information at speeds that can range from 100 to 10,000 times faster than the currently-fielded approaches. However, current Air Force data collection, processing and systems architectures limit its ability to capitalize on this innovation. In order to gain the significant advantages of high-speed data analytics, the SAB recommends the Air Force:

1. Standardize and enforce data annotation, storage, and access standards across the USAF, in coordination with the IC, in order to take advantage of the vast, latent opportunities that are present in current USAF data collection efforts using data exploitation techniques.

2. Create an open architecture ISR enterprise, which includes tactical capabilities, and supporting infrastructure, to create the foundation necessary to enable effective cross-domain, cross-agency processing and exploitation.

3. Deploy multi-disciplinary agile analytic cells at intelligence processing and fusion sites, charged with rapidly employing analytic applications to support real-time operational decision making needs.

4. Employ human-systems integration methods to develop analyst and decision making-centered data visualization tools in order to reduce the significant manual workloads that limit situation awareness for operational decision making.

5. Modernize USAF workforce skills and training to conduct big data analytics and optimize information-centric operations.

6. Create an Air Force Chief Data Officer (CDO) to ensure the prioritization of information, access to appropriate data sets, rapid adoption of analytical and visualization tools, and key manpower requirements are met to improve operational decision making in the USAF.